WHAT IS CLAIMED IS:

1. A head positioning method for positioning a head with respect to a rotating disk by using an actuator, the actuator including a general adjustment actuator which has a voice coil motor and has a stroke covering the entire disk and a fine adjustment actuator which is interposed between the general adjustment actuator and the head and has a stroke smaller that that of the general adjustment actuator, the method comprising the steps of:

generating a first driving signal for driving the general adjustment actuator and a second driving signal for driving the fine adjustment actuator;

detecting a voltage generated in the voice coil motor due to the driving of the general adjustment actuator to generate a voltage signal which indicates the detected voltage value;

estimating the position of the head displaced due to the driving of the general adjustment actuator based on the first driving signal and the voltage signal to generate a first head position estimation signal;

estimating a displacement of the fine adjustment actuator based on the second driving signal to generate a displacement estimation signal;

adding together the first head position estimation signal and the displacement estimation signal to generate a second head position estimation signal;

generating from a target position signal which indicates a target position of the head and the second head position estimation signal, a position error estimation signal which indicates an error of the head with respect to the target position; and

correcting the first driving signal and the second driving signal based on the position error estimation signal.

2. The head positioning method of claim 1, further comprising the steps of:

detecting the position of the head by reproducing, with the head, servo information recorded in advance on the disk; and

generating a position error signal which indicates an error of the head with respect to the target position based on the detected head position and the target position;

wherein the method includes, in place of the driving signal correction step, a correction step of correcting the first driving signal and the second driving signal selectively using one of the position error signal and the position error estimation signal.

3. The head positioning method of claim 2, wherein:

the correction step is performed at a predetermined cycle that is shorter than a sampling cycle of the servo information;

in a period during which the servo information is reproduced with the head, the position error signal is used; and

in a period during which the servo information is not reproduced with the head, the position error estimation signal is used.

4. The head positioning method of claim 1, further comprising the steps of:

estimating the magnitude of disturbance acting on the general adjustment actuator based on the first driving signal and the voltage signal to generate a disturbance estimation signal; and

generating from the disturbance estimation signal a disturbance compensation signal which compensates for disturbance and synthesizing the first driving signal and the disturbance compensation signal to correct the first driving signal.

5. The head positioning method of claim 1, further comprising the steps of:

sequentially detecting the position of the head by reproducing, with the head, servo information recorded in advance on the disk; and

after detecting the position of the head, sequentially correcting the first head position estimation signal based on the detected head position.

6. The head positioning method of claim 1, wherein the fine adjustment actuator is formed by a piezoelectric element.

7. The head positioning method of claim 6, wherein the piezoelectric element has a characteristic that causes a displacement generally proportional to the second driving signal.

8. A disk apparatus, comprising:

a disk on which information is recorded;

a motor for rotating the disk;

a head for at least reproducing the information on the disk;

a head supporting mechanism including a general adjustment actuator which has a voice coil motor and has a stroke covering the entire disk and a fine adjustment actuator which is interposed between the general adjustment actuator and the head and has a stroke smaller that that of the general adjustment actuator;

a controller for generating a first driving signal and a second driving signal;

a first driver for driving the general adjustment actuator according to the first driving signal;

a second driver for driving the fine adjustment actuator according to the

second driving signal;

a voltage detector for detecting a voltage generated in the voice coil motor due to the driving of the general adjustment actuator to output a voltage signal which indicates the detected voltage value;

a first estimator for estimating the position of the head displaced due to the driving of the general adjustment actuator based on the first driving signal and the voltage signal to output a first head position estimation signal;

a second estimator for estimating a displacement of the fine adjustment actuator based on the second driving signal to output a displacement estimation signal;

an adder for adding together the first head position estimation signal and the displacement estimation signal to output a second head position estimation signal; and

a position error-related signal generator for generating from a target position signal which indicates a target position of the head and the second head position estimation signal, a position error estimation signal which indicates an error of the head with respect to the target position,

wherein the controller corrects the first driving signal and the second driving signal based on the position error estimation signal.

9. The disk apparatus of claim 8, wherein:

the position error-related signal generator generates a position error signal which indicates an error of the head with respect to the target position by reproducing, with the head, servo information recorded in advance on the disk; and

the controller corrects the first driving signal and the second driving signal selectively using one of the position error estimation signal and the position error signal.

10. The disk apparatus of claim 9, wherein:

the controller corrects the first driving signal and the second driving signal at a predetermined cycle that is shorter than a sampling cycle of the servo information;

in a period during which the servo information is reproduced with the head, the position error signal is used; and

in a period during which the servo information is not reproduced with the head, the position error estimation signal is used.

11. The disk apparatus of claim 8, further comprising a disturbance compensator for synthesizing a disturbance compensation signal which indicates an estimated magnitude of disturbance acting on the general adjustment actuator with the first driving signal to generate a disturbance-compensated first driving signal,

wherein the first estimator estimates the magnitude of the disturbance acting on the general adjustment actuator based on the disturbance-compensated first driving signal and the voltage signal to generate the disturbance compensation signal.

12. The disk apparatus of claim 8, wherein the first estimator sequentially corrects the first head position estimation signal based on the detected head position that is obtained by reproducing the servo information with the head.

13. The disk apparatus of claim 8, wherein the fine adjustment actuator is formed by a piezoelectric element.

14. The disk apparatus of claim 13, wherein the piezoelectric element has a characteristic that causes a displacement generally proportional to the second driving signal.